

**AMENDMENT TO THE CLAIMS**

1. (currently amended): A method for automated focusing of an electron image in an electron imaging system, the method comprising:

determining monitoring an energy filter cut-off voltage during electron imaging of a substrate; and

adjusting a focusing condition of an a stage bias voltage of the electron imaging system ~~based on a change in in negative correspondence with~~ the energy-filter cut-off voltage so as to maintain a focus of the electron image.
2. (currently amended): The method of claim 1, further comprising:

varying an energy filter voltage to different levels;

measuring an intensity of detected electrons at each of the different levels; and

analyzing the intensity data so as to determine the energy filter cut-off voltage.

wherein, in order to maintain the focus of the electron image, the stage bias voltage is increased when the energy-filter cut-off voltage decreases, and the stage bias voltage is decreased when the energy-filter cut-off voltage increases.
3. (currently amended): The method of claim 1, wherein the focusing condition comprises a wafer bias voltage, and wherein the wafer bias voltage is varied in correspondence to the change in the energy filter cut-off voltage. wherein, in order to maintain the focus of the electron image, the stage bias voltage is increased by a same voltage amount as the energy-filter cut-off voltage decreases, and the stage bias voltage is decreased by a same voltage amount as the energy-filter cut-off voltage increases.

4. (currently amended): The method of claim 1, ~~wherein the focusing condition comprises an objective lens focusing strength wherein, instead of adjusting the stage bias voltage, a strength of an objective lens is adjusted.~~

5. (currently amended): The method of claim 1, ~~wherein the focusing condition comprises an extraction field strength wherein, instead of adjusting the stage bias voltage, a strength of an extraction field is adjusted.~~

6. (currently amended): The method of claim 1, ~~wherein the focusing condition comprises a source voltage level wherein, instead of adjusting the stage bias voltage, a strength of a source voltage level is adjusted.~~

7. (currently amended): The method of claim 1, wherein said adjusting provides for rough focusing of the electron image, and further comprising using a contrast-based focusing procedure for fine focusing of the electron image.

8. (canceled):

9. (canceled):

10. (canceled):

11. (currently amended): A electron beam inspection apparatus, the apparatus including an autofocusing means that comprises:

means for determining monitoring an energy filter cut-off voltage during electron imaging of a substrate; and

means for adjusting a focusing condition of an electron imaging system a stage bias voltage of the electron beam inspection apparatus based on a change in in negative correspondence with the energy-filter cut-off voltage so as to maintain a focus of an electron image.

Claims 12-21. (canceled)

22. (new) The apparatus of claim 11, wherein, in order to maintain the focus of the electron image, the stage bias voltage is increased when the energy-filter cut-off voltage decreases, and the stage bias voltage is decreased when the energy-filter cut-off voltage increases.

23. (new) The apparatus of claim 11, wherein, in order to maintain the focus of the electron image, the stage bias voltage is increased by a same voltage amount as the energy-filter cut-off voltage decreases, and the stage bias voltage is decreased by a same voltage amount as the energy-filter cut-off voltage increases.